

APPENDIX A
SEDIMENTATION POND CALCULATIONS

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C-27-02

1/22

SED. POND DESIGN FOR CRANDALL CANYON MINE

Design Volume

10-yr, 24-hr storm = 2.50 in (Miller et al., 1973)

Drainage area to pond:

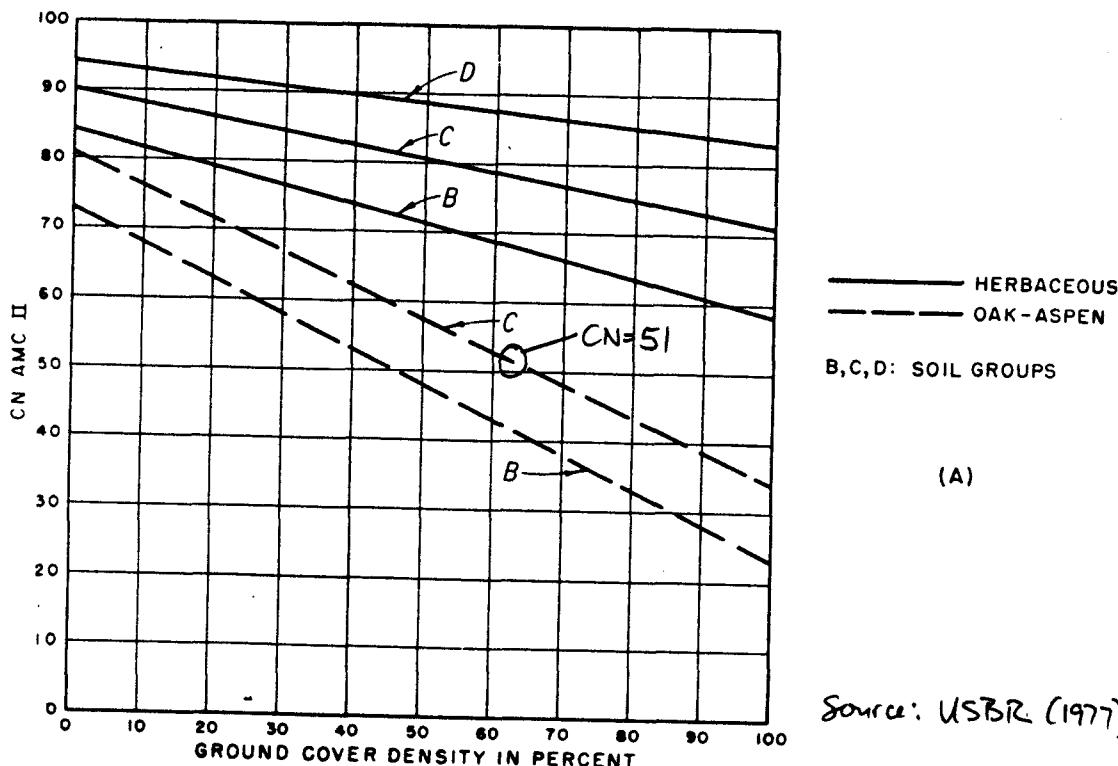
Undisturbed (WS-3) → 16.0 ac

Disturbed → 5.7 ac

Curve numbers:

Undisturbed → Mixed mountain shrub/conifer/aspen vegetative community (see Plate 9-1, Tract 2 permit application). 63% ground cover (see Table 3-E, Tract 2 permit application). Assuming hydrologic soil group C, the figure below indicates CN = 51 for oak-aspen (defined as "mountain brush mixtures of oak, aspen, mountain mahogany, bitter brush, mesal, and other brush" - see USBR [1977]).

Disturbed → CN = 90



Source: USBR (1977)

Required runoff storage volume:

$$\text{Undisturbed area} \rightarrow Q = 0.03 \text{ in} \quad (\text{for } CN=51) \\ = 0.04 \text{ AF} \quad (\text{for } 16.0 \text{ ac watershed})$$

$$\text{Disturbed area} \rightarrow Q = 1.53 \text{ in} \quad (\text{for } CN=90) \\ = 0.73 \text{ AF} \quad (\text{for } 5.7 \text{ ac watershed})$$

$$\text{Total} \rightarrow 0.04 \text{ AF} + 0.73 \text{ AF} = 0.77 \text{ AF}$$

Required sediment storage $\rightarrow 0.1 \text{ AF/ac}$ of disturbed area (see UMC 817.46(b)(1)).

$$\text{Storage volume} = (0.1 \text{ AF/ac})(5.7 \text{ ac}) \\ = 0.57 \text{ AF}$$

$$\text{Total required storage volume} = 0.77 \text{ AF} + 0.57 \text{ AF} \\ = \underline{\underline{1.34 \text{ AF}}}$$

<u>Stage - Capacity - Area</u>	<u>Date</u>	<u>A_{rez}</u>	<u>Inc. Volume</u>	<u>Cum. Volume (AF)</u>
Elev. 7769 \rightarrow		$A = 0.0219 \text{ ac}$	$V = 0.0052 \text{ AF}$	0.0052
Elev. 7770 \rightarrow		$A = 0.0284 \text{ ac}$	$V = 0.0745 \text{ AF}$	0.0997
Elev. 7772 \rightarrow		$A = 0.0461 \text{ ac}$	$V = 0.1131 \text{ AF}$	0.2128
Elev. 7774 \rightarrow		$A = 0.0670 \text{ ac}$	$V = 0.1565 \text{ AF}$	0.3693
Elev. 7776 \rightarrow		$A = 0.0895 \text{ ac}$	$V = 0.2026 \text{ AF}$	0.5719
Elev. 7778 \rightarrow		$A = 0.1131 \text{ ac}$	$V = 0.2529 \text{ AF}$	0.8248
Elev. 7780 \rightarrow		$A = 0.1398 \text{ ac}$	$V = 0.3081 \text{ AF}$	1.1329
Elev. 7782 \rightarrow		$A = 0.1683 \text{ ac}$	$V = 0.3672 \text{ AF}$	1.5001
Elev. 7784 \rightarrow		$A = 0.1989 \text{ ac}$		

Stage-capacity curve \rightarrow see pg. 3 of this calc.

Stage-area curve \rightarrow see pg. 4 of this calc.

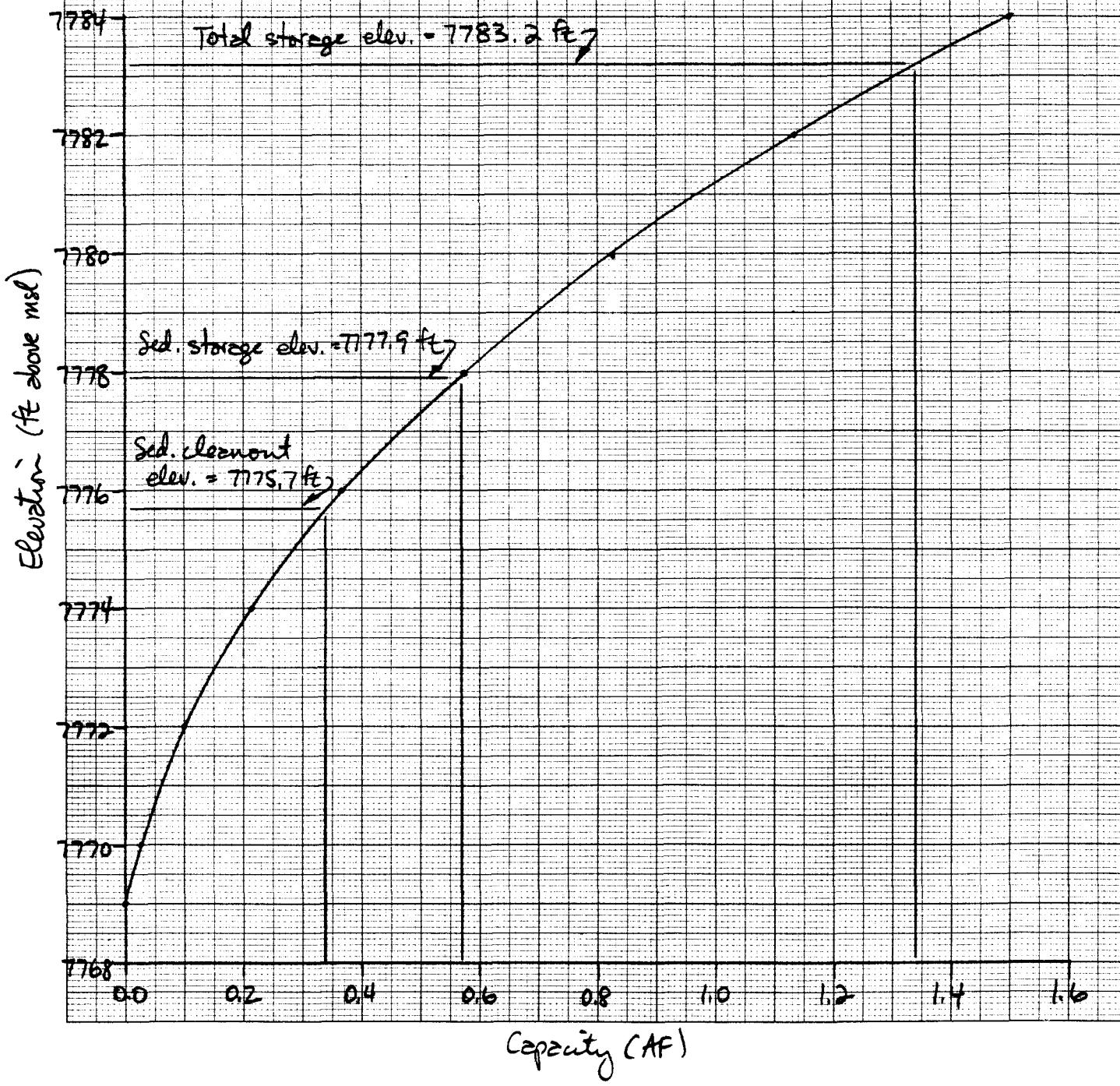
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2 Aug 1985

C-27-02 3/22

Stage-capacity curve for proposed Genwell sedimentation pond

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K*E 10 X 10 TO THE CENTIMETER 18 X 25 CM
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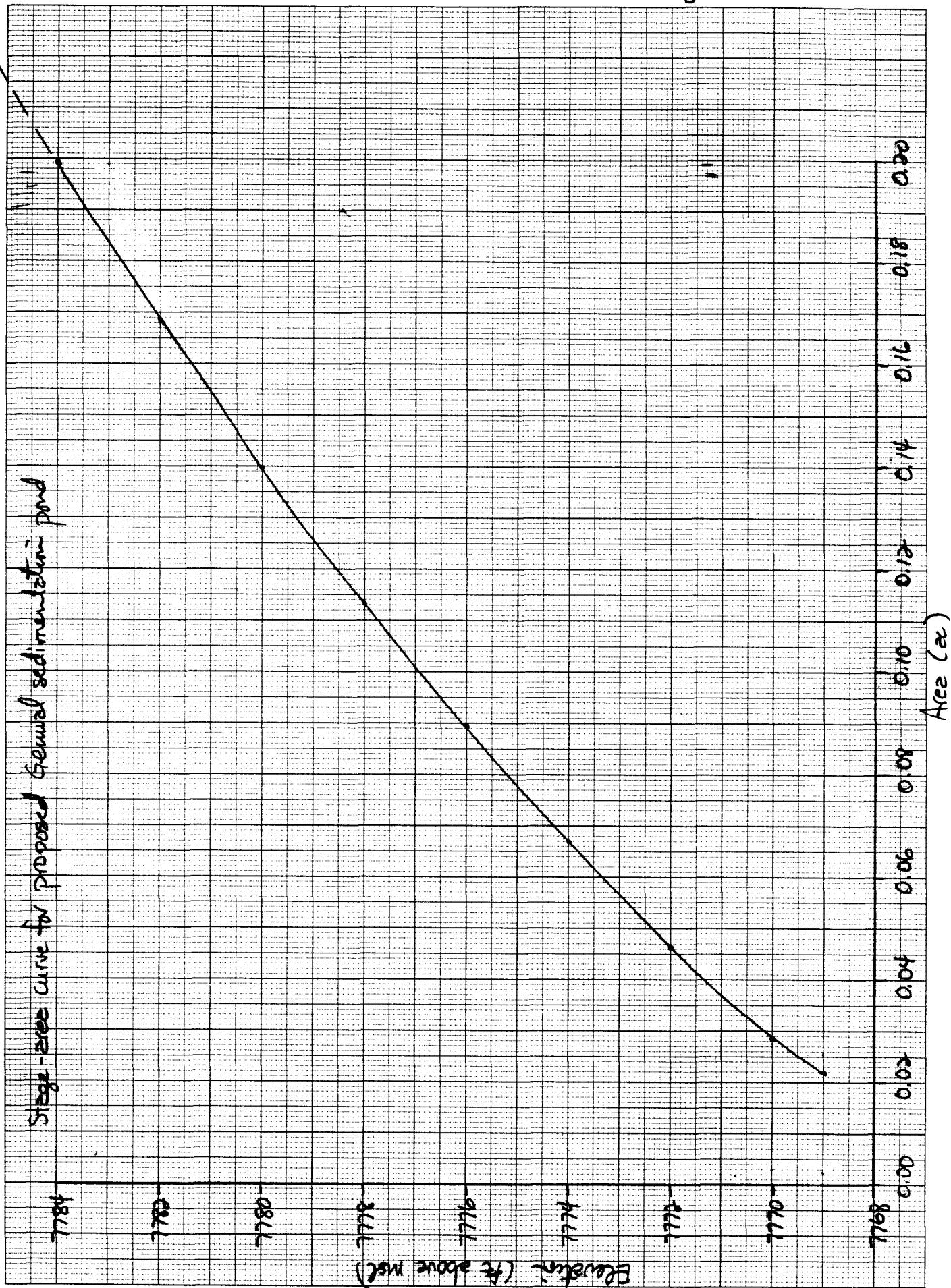
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C-27-02

4/22

461510

K+E 10 X 10 TO THE CENTIMETER 18 X 25 CM
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Spillway Sizing

Methodology → SEDIMOT II (see Wilson et al., 1980; Warner et al., 1980)

Design storm → 25-yr, 24-hr storm = 2.92 in (Miller et al., 1973)

Storm type → SCS Type II

Time increment of outflow hydrograph = 0.1 hr

No. of junctions = 1

No. of branches = 1

Computation mode → hydro. and sed. (although only inflow-outflow through pond is of interest).

Specific gravity of eroded sediment = 2.50 (default value)

Coefficient for distributing sed. load = 1.5 (default value)

Submerged bulk specific gravity = 1.25 (fine to medium)

Particle size distribution → according to Chapter 8 of the PAP, soils in the area are classified as "Rocky land." Swenson et al. (1970) indicate that this soil is a fine sandy loam but give no gradation. According to Donahue et al. (1974), a fine sandy loam typically has the gradation shown on page 6 of this calc. Using this gradation, the following is assumed to apply to the site:

<u>Size (mm)</u>	<u>Percent Finer</u>
0.25	100
0.10	50
0.05	35
0.01	19
0.005	15
0.001	6
0.0001	0

7 values

No. of structures → 1 (sed. pond)

Between structure routing parameters: All Ø (no upstream structures or junctions).

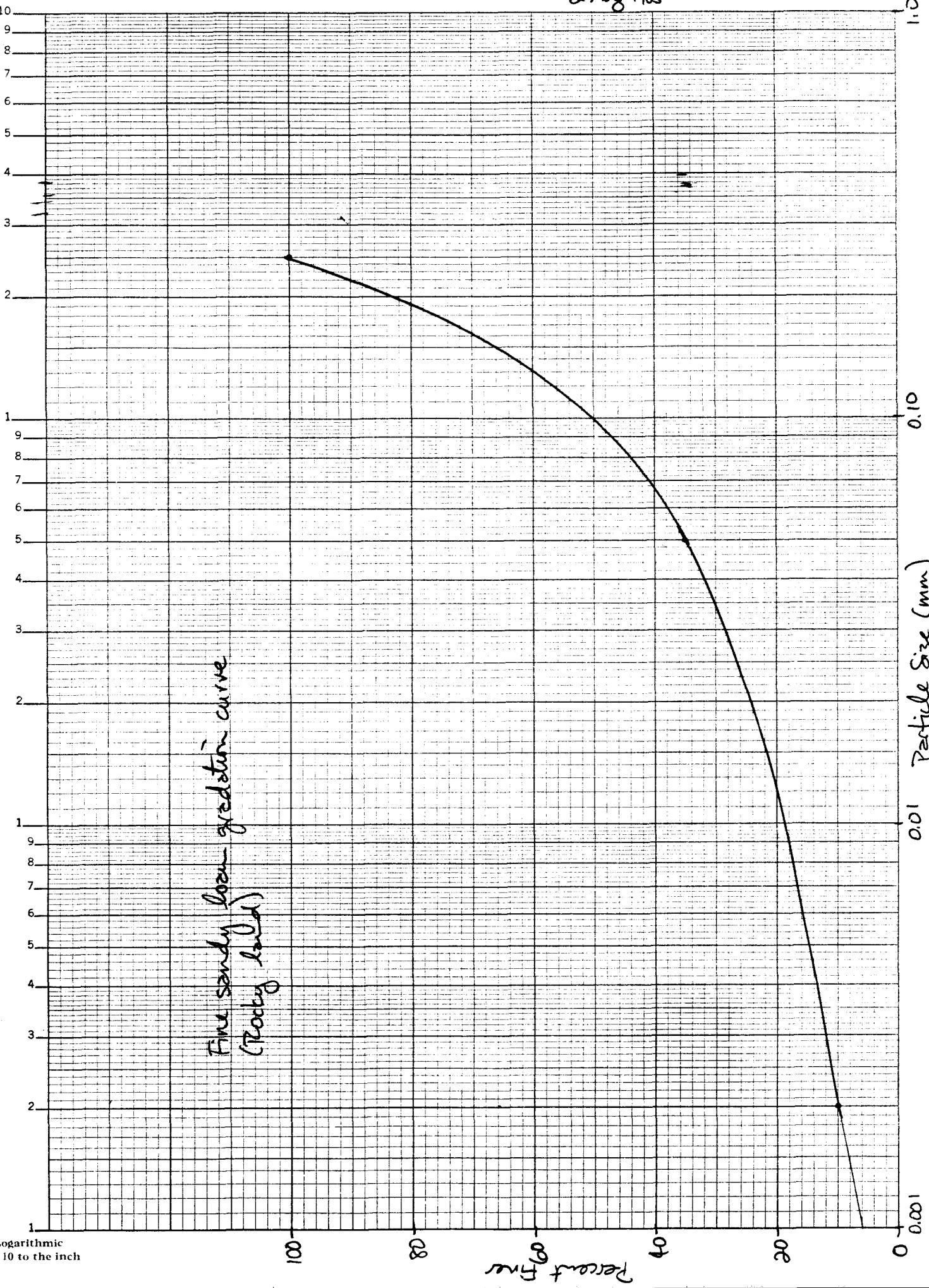
No. of subwatersheds → 2 (1 undisturbed, 1 disturbed)

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12-183
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2 Aug 1985

C-27-02

6/22



Data for subwatershed 1 (undisturbed):

$$A = 16.0 \text{ ac}$$

$$CN = 51$$

$$T_c = 1.67 L$$

$$L = \frac{l^{0.8} (S+1)^{0.7}}{1900 Y^{0.5}}$$

where L = watershed lag (hr)

$$S = \frac{1000}{CN} - 10$$

Y = watershed slope (%)

l = hydraulic length (ft)

$$l = 1320 \text{ ft}$$

$$S = \frac{1000}{51} - 10 = 9.61$$

$$Y = \left[\frac{(11,350 \text{ ft})(40 \text{ ft})}{(16.0 \text{ ac})(43,560 \text{ ft}^2/\text{ac})} \right] (100) = 65.1\%$$

$$L = \frac{(1320)^{0.8} (9.61+1)^{0.7}}{(1900)(65.1)^{0.5}} = 0.11 \text{ hr}$$

$$T_c = (0.11)(1.67) = 0.18 \text{ hr}$$

Sediment-yield calculations for subwatershed 1—use MUSLE

$$K = 0.30 \quad (\text{Clyde et al., 1978})$$

$$L = 200 \text{ ft} \quad (\text{field obs.})$$

$$S = 65.1\%$$

$$CP = 0.037 \quad (\text{see attached table on page 8 of this calc.})$$

Data for subwatershed 2 (disturbed):

$$A = 5.7 \text{ ac}$$

$$CN = 90$$

T_c → determine by Upland method (U.S. SCS, 1972) –
see pg. 9 of this calc. Flow path — across pads, along
roads! Assume pads and roads behave as "paved areas"
on nomograph on pg. 9 of this calc.

R. White
2 Aug 1985

C-27-02

8/22

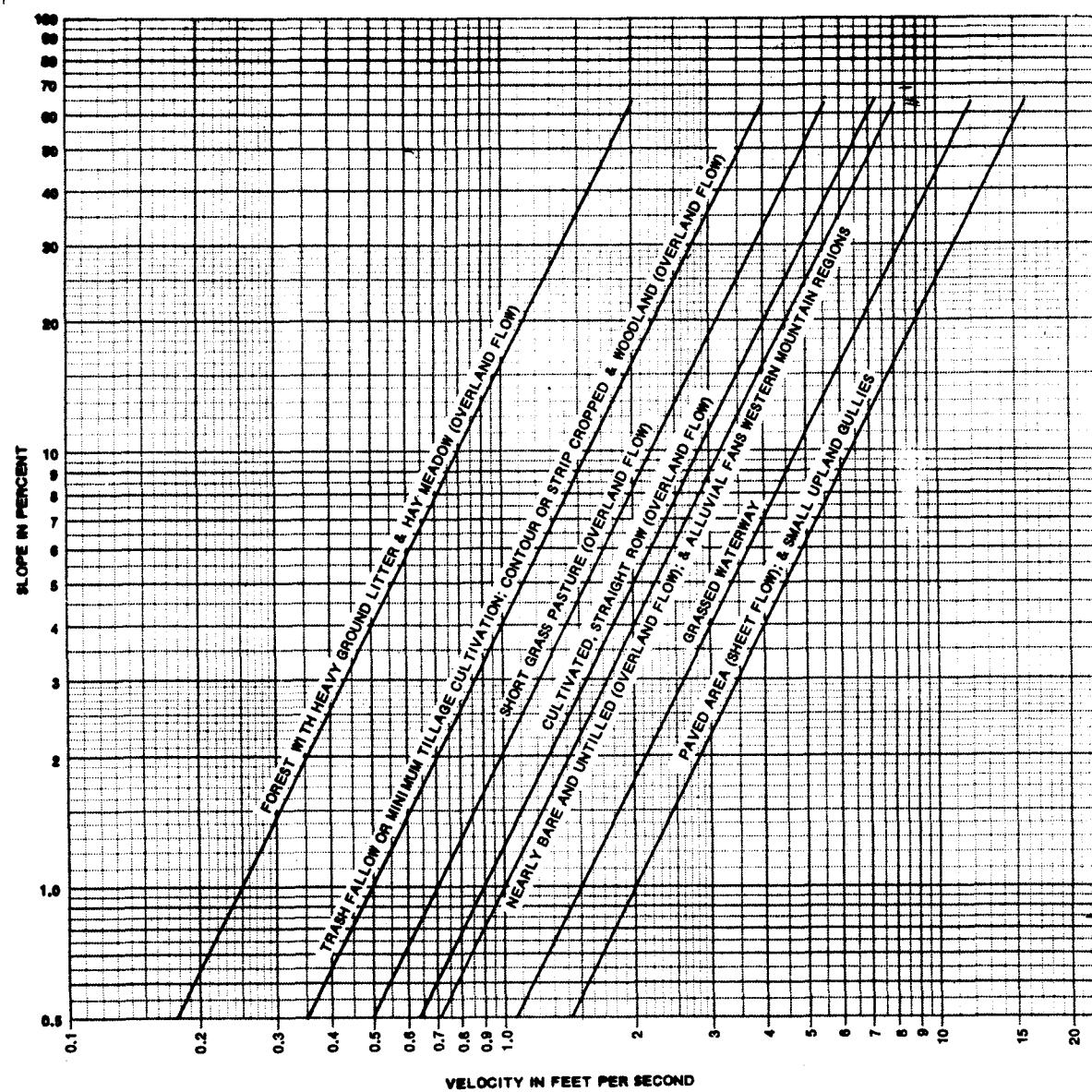
Table 5.A.3. C Factors for Permanent Pasture, Rangeland, Idle Land,^{1,5} and Grazed Woodland.

Vegetal Canopy		Cover that Contacts the Surface						
Type and Height of Raised Canopy ² .	Canopy Cover ³ .	Type ⁴	Percent Ground Cover					
	%		0	20	40	60	80	95-100
No appreciable canopy		G	.45	.20	.10	.042	.013	.003
		W	.45	.24	.15	.090	.043	.011
Canopy of tall weeds or short brush (0.5 m fall ht.)	25	G	.36	.17	.09	.038	.012	.003
		W	.36	.20	.13	.082	.041	.011
	50	G	.26	.13	.07	.035	.012	.003
		W	.26	.16	.11	.075	.039	.011
	75	G	.17	.10	.06	.031	.011	.003
		W	.17	.12	.09	.067	.038	.011
Appreciable brush or bushes (2 m fall ht.)	25	G	.40	.18	.09	.040	.013	.003
		W	.40	.22	.14	.085	.042	.011
	50	G	.34	.16	.085	.038	.012	.003
		W	.34	.19	.13	.081	.041	.011
	75	G	.28	.14	.08	.036	.012	.003
		W	.28	.17	.12	.077	.040	.011
Trees but no appreciable low brush (4 m fall ht.)	25	G	.42	.19	.10	.041	.013	.003
		W	.42	.23	.14	.087	.042	.011
	50	G	.39	.18	.09	.040	.013	.003
		W	.39	.21	.14	.085	.042	.011
	75	G	.36	.17	.09	.039	.012	.003
		W	.36	.20	.13	.083	.041	.011

- All values shown assume: (1) random distribution of mulch or vegetation, and (2) mulch of appreciable depth where it exists. Idle land refers to land with undisturbed profiles for at least a period of three consecutive years. Also to be used for burned forest land and forest land that has been harvested less than three years ago.
 - Average fall height of waterdrops from canopy to soil surface: m = meters.
 - Portion of total area surface that would be hidden from view by canopy in a vertical projection (a bird's-eye view).
 - G: Cover at surface is grass, grasslike plants, decaying compacted duff or litter at least 2 inches deep.
 - W: Cover at surface is mostly broadleaf herbaceous plants (as weeds with little lateral root network near the surface), and/or undecayed residue.
5. Soil Conservation Service (1977).

Source: Barfield et al. (1981)

R. White
3 Aug 1985 C-27-02 9/22



Source: US SCS (1972)

600 ft @ 1% slope $\rightarrow V = 2 \text{ ft/s}$ (portal pad to admin. pad)

$$(T_c)_1 = \frac{600 \text{ ft}}{2 \text{ ft/s}} = 300 \text{ s}$$

700 ft @ 7% slope $\rightarrow V = 5.4 \text{ ft/s}$ (along road from admin. pad to pond)

$$(T_c)_2 = \frac{700 \text{ ft}}{5.4 \text{ ft/s}} = 130 \text{ s}$$

$$T_c = (300 \text{ s} + 130 \text{ s}) = 0.12 \text{ hr}$$

Sediment yield calculations \rightarrow use MUSLE

$$K = 0.30 \quad (\text{Clyde et al., 1978})$$

$$L = 70 \text{ ft}$$

$$S = \left[\frac{(5410 \text{ ft})(10 \text{ ft})}{(5.7 \text{ ac})(43,560 \text{ ft}^3/\text{ac})} \right] (100) = 21.8\%$$

CP \rightarrow 2.9 ac. of pad areas: $CP = 0.90$
 2.8 ac. of cut & fill slopes: $CP = 0.80$ } see pg. 11 of this calc.

$$\text{Avg. CP} = \frac{(2.9)(0.90) + (2.8)(0.80)}{5.7} = 0.85$$

Pond Parameters:

$$\begin{aligned} \text{Dead space} \rightarrow \text{Effective pond width} &= \frac{\text{Area}}{\text{Length}} \\ &= \frac{8660 \text{ ft}^2}{120 \text{ ft}} = 72.2 \text{ ft} \end{aligned}$$

$$\frac{\text{Length}}{\text{Eff. Width}} = \frac{120}{72.2} = 1.7 \Rightarrow \text{assume dead space} = 30\% \text{ of pool}$$

Outflow withdrawal \rightarrow surface

Inflow \rightarrow completely mixed

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6-27-85

11/22

Table 5.A.1 Typical C Factor Values Reported in the Literature.*

Condition	C factor
1. Bare soil conditions	
freshly disked to 6-8 inches	1.00
after one rain	0.89
loose to 12 inches smooth	0.90
loose to 12 inches rough	0.80
compacted root raked	1.20
compacted bulldozer scraped across slope	1.20
same except root raked across	0.90
rough irregular tracked all directions	0.90
seed and fertilize, fresh, unprepared seedbed	0.64
same after six months	0.54
seed, fertilize and 12 months chemical	0.38
not tilled algae crusted	0.01
tilled algae crusted	0.02
undisturbed except scraped	0.66 - 1.30
scarified only	0.76 - 1.31
sawdust 2 inches deep, disked in	0.61
2. Asphalt emulsion	
1210 gallons/acre	0.01 - 0.019
605 gallons/acre	0.14 - 0.57
302 gallons/acre	0.28 - 0.60
3. Dust binder	
605 gallons/acre	1.05
1210 gallons/acre	0.29 - 0.78
4. Other chemicals	
1000 lb fiber glass roving with 60-150 gallons/acre	0.01 - 0.05
Aquatain	0.68
Aerospray 70, 10 percent cover	0.94
Curasol AE	0.30 - 0.48
PVA	0.71 - 0.90
Terra-Tack	0.66
wood fiber slurry, 1400 lb/acre fresh	0.01 - 0.02
wood fiber slurry, 3500 lb/acre fresh	0.10
5. Seedings ¹	
temporary, 0 to 60 days ²	0.40
temporary, after 60 days	0.05
permanent, 2 to 12 months	0.05
6. Brush	0.35
1.	If plantings are used with mulches, use the minimum C values.
2.	If dry weather occurs at planting and emergence is a problem, extend the 0-60 days to a period when rainfall normally occurs.
*	National Cooperative Highway Research Program, 1976.

Source: Berfield et al. (1981)

Stage-area data (for pond full to top of sed. storage or dewatering level):

Stage (ft)	Elev. (ft)	Area (ac.)
0.0	7777.9	0.112
0.5	7778.4	0.118
1.0	7778.9	0.125
1.5	7779.4	0.131
2.0	7779.9	0.138
3.0	7780.9	0.153
4.0	7781.9	0.168
5.0	7782.9	0.182
Principal Spillway crest	5.3	0.187
	5.8	0.194
	6.3	0.202
	6.8	0.220
	7.1	0.225

13 values

Stage-discharge data:

For principal spillway → Barrel diameter = 18 in

Riser diameter = 24 in

Barrel length = 85 ft

Berfield et al. (1981)

{ Entrance loss coef. = 1.0 ✓
 Bend loss coef. = 0.5 ✓
 Wier flow coef. = 3.1 ✓
 Orifice flow coef. = 0.6 ✓
 Manning's n of pipe = 0.024 ✓

Barrel head drop = 20 ft

Stage-discharge data for principal spillway →

see pg. 13 of this calc. (data calculated by preliminary run of SEDIMOT II).

R. White
3 Aug 1985

c-27-02

13/22

***** DROP SPILLWAY INPUTS *****

ENTRANCE LOSS COEFFICIENT	=	1.0000
BEND LOSS COEFFICIENT	=	.5000
WEIR COEFFICIENT	=	3.1000
ORIFICE COEFFICIENT	=	.6000
MANNING COEFFICIENT	=	.0240
BARREL DIAMETER	=	18.00 INCHES
RISER DIAMETER	=	24.00 INCHES
LENGTH OF PIPE	=	85.00 FEET
VERTICAL HEAD DROP	=	20.00 FEET

***** BASIN GEOMETRY *****

STAGE (FT)	AREA (ACRES)	AVERAGE DEPTH (FT)	DISCHARGE (CFS)	CAPACITY (ACRES-FT)
.00	.112	.00	.00	.00
.50	.118	.49	.00	.06
1.00	.125	.98	.00	.12
1.50	.131	1.46	.00	.18
2.00	.138	1.93	.00	.25
3.00	.153	2.84	.00	.39
4.00	.168	3.72	.00	.56
5.00	.182	4.59	.00	.73
5.30	.187	4.84	.00	.79
5.80	.194	5.26	6.89	.88
6.30	.202	5.68	15.13	.98
6.80	.220	6.08	18.53	1.09
7.10	.225	6.31	20.29	1.15

Principal
(drop-inlet)
Spillway

Emergency spillway hydraulics:

Assume $L = 10.0$ ft (spillway length)

$b = 4.0$ ft (spillway width)

$Z = 2$ (2h: Pv sideslopes)

$n = 0.040$ (rip rap lined)

Use method developed by U.S. SCS (1968) and expanded by Barfield et al. (1981):

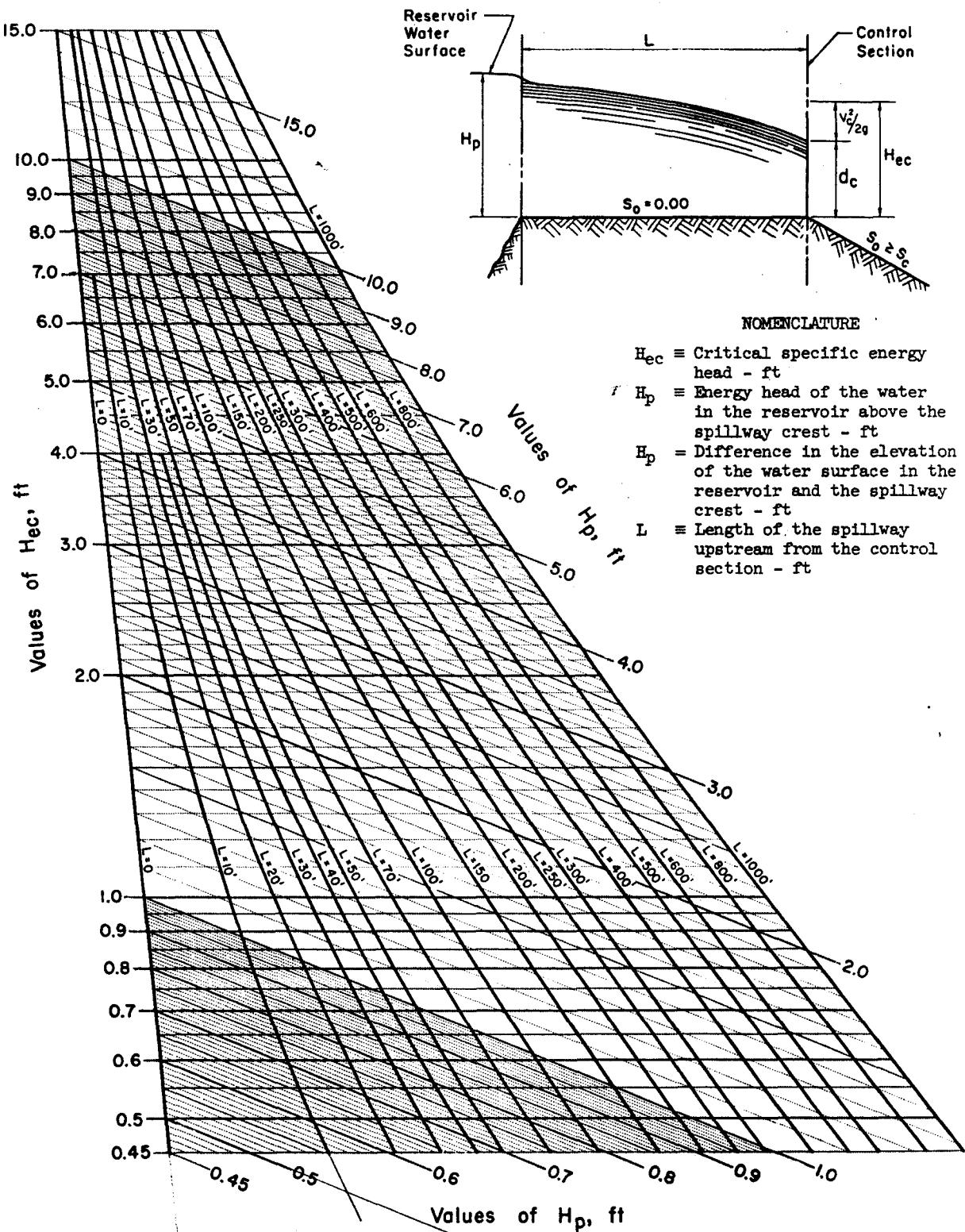
- ① Determine $H_{ec,r}$ (critical specific energy head) for selected values of H_p (energy head of water in pond) from figure on pg. 14 of this calc.
- ② Calculate g_f from the following eq. for the standard 180-ft wide rectangular section:

$$g_f = (0.544)(g_f^{\frac{1}{2}})(H_{ec,r}^{3/2})(100)$$

SPILLWAYS: Hec vs Hp for Various Lengths, L

$b = 100 \text{ ft}$
 $z = 2$
 $n = 0.04$

Case I



REFERENCE

Source: U.S. SCS (1968)

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ES- 171

SHEET 1 OF 10DATE 2-67

③ Correct q for a trapezoidal section according to the equation

$$\bar{q} = \left[\frac{1.5 b + z H_{ec,r}}{150} \right] (q_r)$$

H_p (ft)	$H_{ec,r}$ (ft)	\bar{q}_r (cfs)	\bar{q} (cfs)
0.5	0.41	81.0	3.7
0.8	0.69	177	8.7
1.5	1.38	500	29.2
1.8	1.69	678	42.4

Combined discharge rating curve:

Stage ^(a) (ft)	\bar{q} -principal (cfs)	\bar{q} -emergency (cfs)	\bar{q} -total (cfs)
5.3	0	0	0
5.8	6.9	0.0	6.9
6.3	15.1	0.0	15.1
6.8	18.5	3.7	22.2
7.1	20.3	8.7	29.0

(a) From top of sed. storage level

SEDI-MOT II results → Peak inflow = 10.61 cfs
 Peak outflow = 9.52 cfs
 Trap efficiency = 86.3%
 Peak stage = 5.96 ft (above sed. storage level).

Elev. of peak stage = 7777.9 + 6.0 = 7783.9 ft
 Required elev. of top of embankment = 7784.9 ft

Design Notes

① Required top width of embankment = $\left(\frac{15.9 + 35}{5}\right)$
 $= 10.2 \text{ ft}$

② Existing embankment crest elev. = 7783.0 ft (per survey).
 New addition to be constructed 5% higher (see UMC 817.46 (k)). Existing embankment assumed to be settled. No outflow in emerg. spillway during design event.
 Crest elev. spillway = 7784.2 ft. Crest of settled embankment = 7785.2 ft.
 Add $\rightarrow (2.2)(1.05) = 2.3 \text{ ft}$
 for new design

③ Overflow on existing riser at elev. 7779.4 ft (per survey).
 Raise 3.8 ft to 7783.2 ft to top of sed.+ runoff storage level. Decant currently at 7776.4 ft (per survey). Raise 1.5 ft to 7777.9 ft (top of sed. storage level).

④ Crest of emergency spillway to be located at 7784.2 ft (elev. of overflow on riser spillway). Emergency spillway to be riprapped. Riprap corresponding to $n = 0.04 \rightarrow d_{50} \approx 6-8 \text{ in}$. Riprap gradation

Size (in)	Percent Finer	
3.6	20	
6.0	50	
12.0	100	see Barfield et al. (1981) Seacy (1978)

Riprap gradation curve provided on pg 17 of this calc.

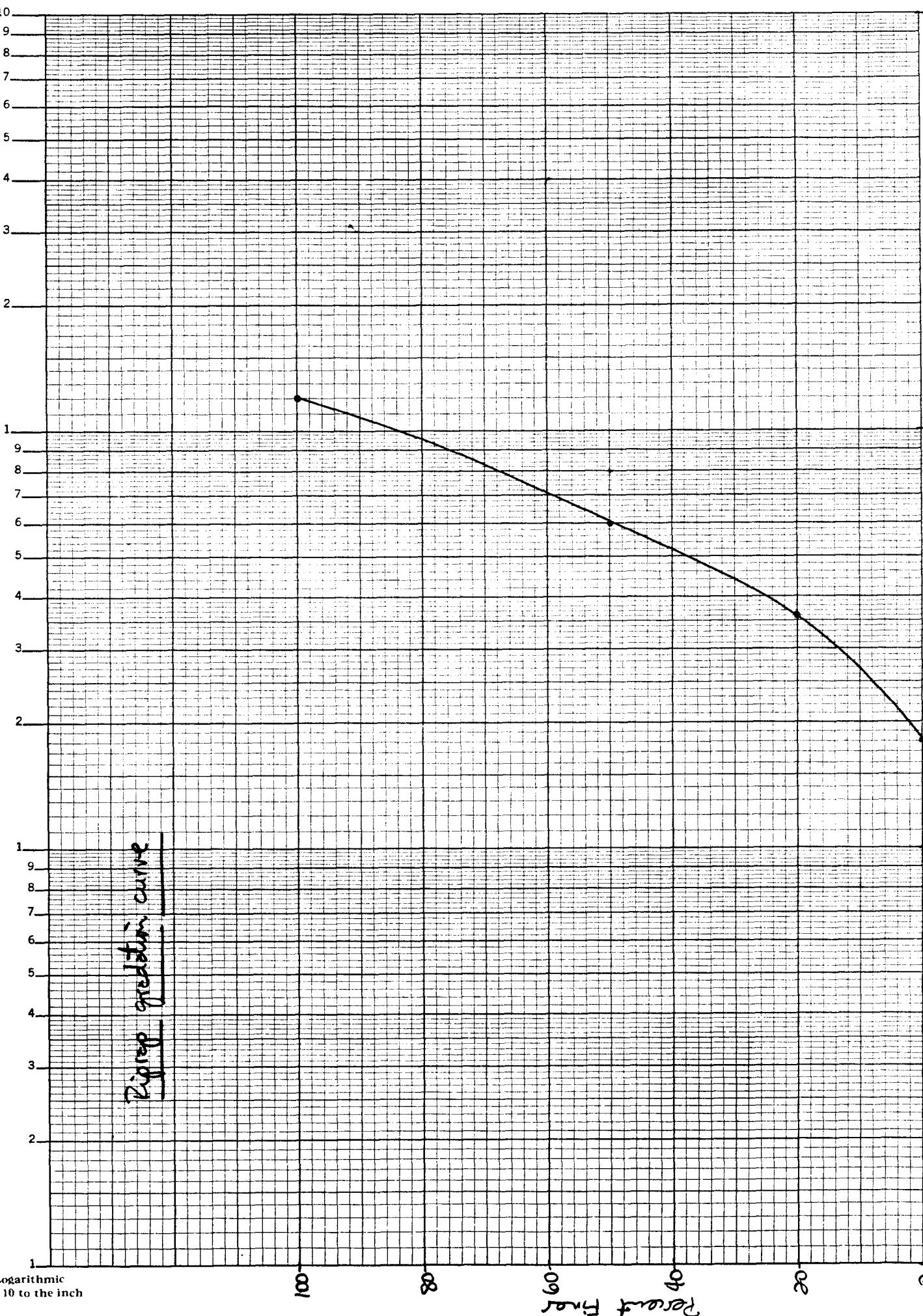
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100

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1.0 Particle Size (in)

Pigment grading curveSemi-Logarithmic
3 Cycles x 10 to the inch

Check for necessity of filter blanket beneath riprap:

Gradation of bed material (embankment) provided on pg. 19 of this calc. (similar to page 6 with addition of coarse fraction - see Delta Geotechnical Consultants, 1981). Design procedure from Seacay (1978).

$$\frac{D_{15} \text{ (riprap)}}{D_{85} \text{ (bed)}} = \frac{3.1 \text{ in}}{0.94 \text{ in}} = 3.3 < 5 \quad \underline{\underline{\text{OK}}}$$

$$\frac{D_{15} \text{ (riprap)}}{D_{15} \text{ (bed)}} = \frac{3.1 \text{ in}}{0.0021 \text{ in}} = 1476 > 40 \quad \underline{\underline{\text{UNSTABLE}}}$$

Assume the use of the sandy gravel shown on pg. 20 of this calc. for a filter blanket.

$$\frac{D_{15} \text{ (riprap)}}{D_{85} \text{ (filter)}} = \frac{3.1 \text{ in}}{0.62 \text{ in}} = 5.0 \quad \underline{\underline{\text{OK}}}$$

$$\frac{D_{15} \text{ (riprap)}}{D_{15} \text{ (filter)}} = \frac{3.1}{0.078 \text{ in}} = 39.7 < 40 \quad \underline{\underline{\text{OK}}}$$

$$\frac{D_{15} \text{ (filter)}}{D_{85} \text{ (bed)}} = \frac{0.078 \text{ in}}{0.94 \text{ in}} = 0.08 < 5 \quad \underline{\underline{\text{OK}}}$$

$$\frac{D_{15} \text{ (filter)}}{D_{15} \text{ (bed)}} = \frac{0.078 \text{ in}}{0.0021 \text{ in}} = 37.1 < 40 \quad \underline{\underline{\text{OK}}}$$

Indicated sandy gravel is sufficient for a filter blanket.

19/22

10

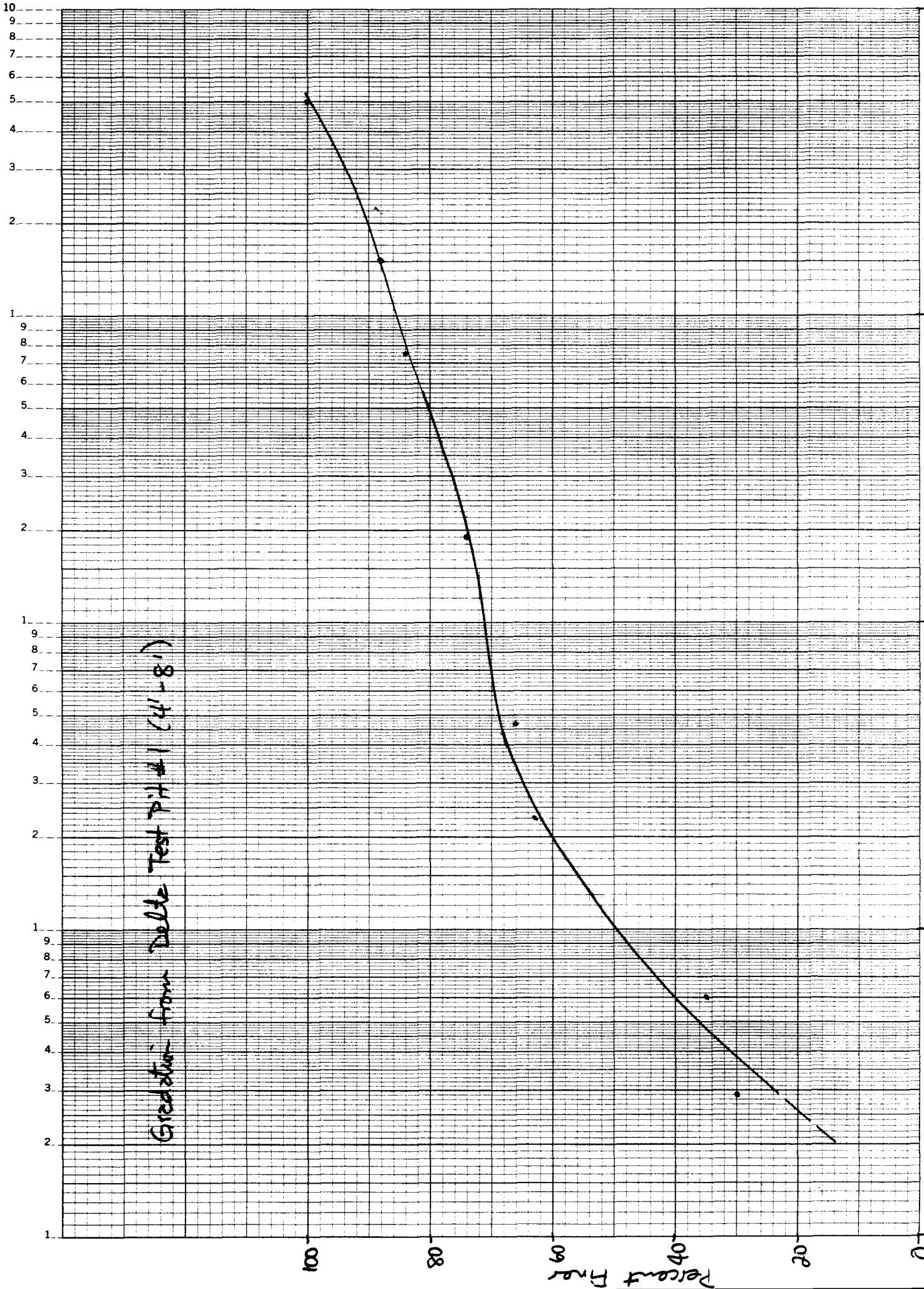
1.0

Particle Size (in)

0.1

0.01

0.001



Gravimetric Test #1 (41-81)

K*Σ SEMI-LOGARITHMIC 4 CYCLES X 70 DIVISIONS
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10

0.1 Particle Size (in)

0.01

100

80

60

20

Percent finer

1

9

8

7

6

5

4

3

2

1

9

8

7

6

5

4

3

2

1

Sandy gravel

80

60

20

Percent finer

Semi-Logarithmic
3 Cycles x 10 to the inch

- ⑤ Embankment sideslopes → 2:1 interior, 2:1 exterior.
Insufficient room to flatten either slope and result in enough volume. This configuration was modeled by R & M Consultants (1981) and found to have a static factor of safety of 1.4 (w/ pond lined with 12" clay). Add weight to toe of dam to increase factor of safety.
- ⑥ 12" layer of compacted local clay to be used in pond bottom and interior embankment per R & M consultants design to decrease seepage, increase stability.
- ⑦ Revegetate exterior embankment slope following reconstruction.

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C-27-02 22/22

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-- SEDPC --

SEDIMOT II MODEL FOR THE IBM PC/XT
CONVERTED BY TECH ENGINEERING INC.
VERSION 1.10 NOVEMBER 17, 1983

UNIVERSITY OF KENTUCKY COMPUTER MODEL
OF SURFACE MINE HYDROLOGY AND SEDIMENTOLOGY
FOR MORE INFORMATION CONTACT THE AGRICULTURAL
ENGINEERING DEPARTMENT
THE UK MODEL IS A DESIGN MODEL DEVELOPED TO PREDICT
THE HYDRAULIC AND SEDIMENT RESPONSE FROM SURFACE
MINED LANDS FOR A SPECIFIED RAINFALL EVENT (SINGLE STORM)
VERSION DATE 9-23-83
DISCLAIMER: NEITHER THE UNIVERSITY NOR ANY OF ITS EMPLOYEES
ACCEPT ANY RESPONSIBILITY OR LEGAL LIABILITY FOR THE
CONCLUSIONS DRAWN FROM THE RESULTS OF THIS MODEL

WATERSHED IDENTIFICATION CODE

GENWAL SEDIMENTATION POND - 25-YR, 24-HR STORM, COMBINED SPILLWAYS

INPUT PARTICLE SIZE-PERCENT FINER DISTRIBUTIONS

SIZE,MM .250 .100 .050 .010 .005 .001
.000
PCT FINER NO. 1 100.000 50.000 35.000 19.000 15.000 6.000
.000

*****INPUT VALUES*****

STORM DURATION = 24.00 HOURS
PRECIPITATION DEPTH = 2.92 INCHES
SPECIFIC GRAVITY = 2.50
LOAD RATE EXPONENT FACTOR = 1.50
SUBMERGED BULK SPECIFIC GRAVITY = 1.25

*
 JUNCTION 1, BRANCH 1, STRUCTURE 1
 *

***** RESULTS FROM SUBWATERSHED 1 *****
 *** PARTICLE SIZE DISTRIBUTION OF SEDIMENT ***

SIZE,MM	.2500	.1000	.0500	.0100	.0050	.0010
PERCENT FINER	100.0000	66.4445	46.5111	25.2489	19.9333	7.9733
SIZE,MM	.0001					
PERCENT FINER	.0000					

*** HYDROGRAPH AND SEDIMENT GRAPH ***
 (TWO CONSECUTIVE VALUES PER LINE)

TIME (HR)	DISCHARGE (CFS)	SED DISC (MG/L)	*	TIME (HR)	DISCHARGE (CFS)	SED DISC (MG/L)
.00	.000	.000	*	.10	.000	.000
.20	.000	.000	*	.30	.000	.000
.40	.000	.000	*	.50	.000	.000
.60	.000	.000	*	.70	.000	.000
.80	.000	.000	*	.90	.000	.000
1.00	.000	.000	*	1.10	.000	.000
1.20	.000	.000	*	1.30	.000	.000
1.40	.000	.000	*	1.50	.000	.000
1.60	.000	.000	*	1.70	.000	.000
1.80	.000	.000	*	1.90	.000	.000
2.00	.000	.000	*	2.10	.000	.000
2.20	.000	.000	*	2.30	.000	.000
2.40	.000	.000	*	2.50	.000	.000
2.60	.000	.000	*	2.70	.000	.000
2.80	.000	.000	*	2.90	.000	.000
3.00	.000	.000	*	3.10	.000	.000
3.20	.000	.000	*	3.30	.000	.000
3.40	.000	.000	*	3.50	.000	.000
3.60	.000	.000	*	3.70	.000	.000
3.80	.000	.000	*	3.90	.000	.000
4.00	.000	.000	*	4.10	.000	.000
4.20	.000	.000	*	4.30	.000	.000
4.40	.000	.000	*	4.50	.000	.000
4.60	.000	.000	*	4.70	.000	.000
4.80	.000	.000	*	4.90	.000	.000
5.00	.000	.000	*	5.10	.000	.000
5.20	.000	.000	*	5.30	.000	.000
5.40	.000	.000	*	5.50	.000	.000
5.60	.000	.000	*	5.70	.000	.000
5.80	.000	.000	*	5.90	.000	.000
6.00	.000	.000	*	6.10	.000	.000
6.20	.000	.000	*	6.30	.000	.000
6.40	.000	.000	*	6.50	.000	.000
6.60	.000	.000	*	6.70	.000	.000
6.80	.000	.000	*	6.90	.000	.000
7.00	.000	.000	*	7.10	.000	.000
7.20	.000	.000	*	7.30	.000	.000
7.40	.000	.000	*	7.50	.000	.000
7.60	.000	.000	*	7.70	.000	.000
7.80	.000	.000	*	7.90	.000	.000
8.00	.000	.000	*	8.10	.000	.000
8.20	.000	.000	*	8.30	.000	.000
8.40	.000	.000	*	8.50	.000	.000
8.60	.000	.000	*	8.70	.000	.000
8.80	.000	.000	*	8.90	.000	.000
9.00	.000	.000	*	9.10	.000	.000
9.20	.000	.000	*	9.30	.000	.000

9.40	.000	.000	*	9.50	.000	.000
9.60	.000	.000	*	9.70	.000	.000
9.80	.000	.000	*	9.90	.000	.000
10.00	.000	.000	*	10.10	.000	.000
10.20	.000	.000	*	10.30	.000	.000
10.40	.000	.000	*	10.50	.000	.000
10.60	.000	.000	*	10.70	.000	.000
10.80	.000	.000	*	10.90	.000	.000
11.00	.000	.000	*	11.10	.000	.000
11.20	.000	.000	*	11.30	.000	.000
11.40	.000	.000	*	11.50	.000	.000
11.60	.000	.000	*	11.70	.000	.000
11.80	.000	.000	*	11.90	.000	.000
12.00	.000	.000	*	12.10	.000	.000
12.20	.010	11789.500	*	12.30	.030	19854.300
12.40	.057	27385.000	*	12.50	.090	34260.900
12.60	.122	39811.700	*	12.70	.132	41360.000
12.80	.135	41836.000	*	12.90	.139	42508.300
13.00	.147	43588.200	*	13.10	.157	45031.400
13.20	.160	45452.800	*	13.30	.161	45655.300
13.40	.164	46068.000	*	13.50	.169	46716.200
13.60	.175	47467.200	*	13.70	.174	47442.700
13.80	.173	47284.100	*	13.90	.173	47287.100
14.00	.175	47464.500	*	14.10	.176	47655.100
14.20	.171	46927.100	*	14.30	.164	46048.600
14.40	.159	45360.600	*	14.50	.156	44885.400
14.60	.154	44654.400	*	14.70	.153	44529.600
14.80	.153	44427.900	*	14.90	.152	44366.200
15.00	.152	44354.000	*	15.10	.152	44366.500
15.20	.152	44403.000	*	15.30	.153	44467.500
15.40	.154	44563.200	*	15.50	.154	44690.900
15.60	.155	44838.700	*	15.70	.157	45005.900
15.80	.158	45194.100	*	15.90	.159	45404.400
16.00	.161	45635.900	*	16.10	.161	45640.000
16.20	.152	44296.900	*	16.30	.141	42800.500
16.40	.134	41642.800	*	16.50	.129	40860.800
16.60	.126	40472.600	*	16.70	.125	40246.800
16.80	.123	40034.800	*	16.90	.122	39837.500
17.00	.121	39655.600	*	17.10	.120	39489.500
17.20	.119	39340.300	*	17.30	.118	39208.400
17.40	.118	39094.900	*	17.50	.117	39000.200
17.60	.117	38924.700	*	17.70	.116	38869.400
17.80	.116	38834.800	*	17.90	.116	38821.400
18.00	.116	38829.600	*	18.10	.116	38859.900
18.20	.117	38913.000	*	18.30	.117	38988.900
18.40	.118	39088.100	*	18.50	.118	39207.500
18.60	.119	39328.500	*	18.70	.120	39449.200
18.80	.121	39569.000	*	18.90	.121	39688.400
19.00	.122	39807.400	*	19.10	.123	39925.700
19.20	.124	40043.400	*	19.30	.124	40160.700
19.40	.125	40277.300	*	19.50	.126	40393.500
19.60	.126	40509.100	*	19.70	.127	40624.200
19.80	.128	40738.700	*	19.90	.129	40852.700
20.00	.129	40966.400	*	20.10	.129	40907.700
20.20	.122	39876.200	*	20.30	.115	38741.400
20.40	.110	37852.600	*	20.50	.107	37231.000
20.60	.105	36893.400	*	20.70	.103	36674.200
20.80	.102	36467.700	*	20.90	.101	36274.400
21.00	.100	36094.600	*	21.10	.099	35928.500
21.20	.098	35776.700	*	21.30	.097	35639.300
21.40	.097	35516.900	*	21.50	.096	35409.800
21.60	.096	35318.300	*	21.70	.095	35242.400
21.80	.095	35182.700	*	21.90	.095	35139.400
22.00	.095	35112.600	*	22.10	.095	35102.400
22.20	.095	35109.100	*	22.30	.095	35133.000
22.40	.095	35174.000	*	22.50	.095	35229.500

22.60	.096	35286.800	*	22.70	.096	35344.000
22.80	.096	35401.000	*	22.90	.096	35457.800
23.00	.097	35514.400	*	23.10	.097	35571.100
23.20	.097	35627.400	*	23.30	.098	35683.600
23.40	.098	35739.500	*	23.50	.098	35795.500
23.60	.099	35851.300	*	23.70	.099	35906.900
23.80	.099	35962.300	*	23.90	.100	36017.600
24.00	.100	36072.700	*	24.10	.098	35679.500
24.20	.082	32633.500	*	24.30	.064	29052.500
24.40	.051	25933.700	*	24.50	.042	23476.300
24.60	.036	21917.000	*	24.70	.033	20749.600
24.80	.029	19580.000	*	24.90	.026	18407.900
25.00	.022	17233.600	*	25.10	.019	16056.900
25.20	.017	14877.900	*	25.30	.014	13696.500
25.40	.012	12512.700	*	25.50	.010	11326.600
25.60	.008	10138.200	*	25.70	.006	8947.330
25.80	.005	7754.110	*	25.90	.003	6558.530
26.00	.002	5360.550	*	26.10	.001	4160.160
26.20	.001	2957.300	*	26.30	.000	.000

***** RESULTS FROM SUBWATERSHED 2 *****
 *** PARTICLE SIZE DISTRIBUTION OF SEDIMENT ***

SIZE,MM	.2500	.1000	.0500	.0100	.0050	.0010
PERCENT FINER	100.0000	50.0000	35.0000	19.0000	15.0000	6.0000
SIZE,MM	.0001					
PERCENT FINER	.0000					

*** HYDROGRAPH AND SEDIMENT GRAPH ***
 (TWO CONSECUTIVE VALUES PER LINE)

TIME (HR)	DISCHARGE (CFS)	SED DISC (MG/L)	*	TIME (HR)	DISCHARGE (CFS)	SED DISC (MG/L)
.00	.000	.000	*	.10	.000	.000
.20	.000	.000	*	.30	.000	.000
.40	.000	.000	*	.50	.000	.000
.60	.000	.000	*	.70	.000	.000
.80	.000	.000	*	.90	.000	.000
1.00	.000	.000	*	1.10	.000	.000
1.20	.000	.000	*	1.30	.000	.000
1.40	.000	.000	*	1.50	.000	.000
1.60	.000	.000	*	1.70	.000	.000
1.80	.000	.000	*	1.90	.000	.000
2.00	.000	.000	*	2.10	.000	.000
2.20	.000	.000	*	2.30	.000	.000
2.40	.000	.000	*	2.50	.000	.000
2.60	.000	.000	*	2.70	.000	.000
2.80	.000	.000	*	2.90	.000	.000
3.00	.000	.000	*	3.10	.000	.000
3.20	.000	.000	*	3.30	.000	.000
3.40	.000	.000	*	3.50	.000	.000
3.60	.000	.000	*	3.70	.000	.000
3.80	.000	.000	*	3.90	.000	.000
4.00	.000	.000	*	4.10	.000	.000
4.20	.000	.000	*	4.30	.000	.000
4.40	.000	.000	*	4.50	.000	.000
4.60	.000	.000	*	4.70	.000	.000
4.80	.000	.000	*	4.90	.000	.000
5.00	.000	.000	*	5.10	.000	.000
5.20	.000	.000	*	5.30	.000	.000
5.40	.000	.000	*	5.50	.000	.000
5.60	.000	.000	*	5.70	.000	.000
5.80	.000	.000	*	5.90	.000	.000
6.00	.000	.000	*	6.10	.000	.000
6.20	.012	17098.700	*	6.30	.015	19328.700
6.40	.018	21293.000	*	6.50	.022	23060.700
6.60	.025	24674.900	*	6.70	.028	26164.900
6.80	.031	27551.700	*	6.90	.034	28850.400
7.00	.037	30073.500	*	7.10	.040	31229.900

7.20	.043	32327.500	*	7.30	.046	33372.300
7.40	.049	34369.800	*	7.50	.051	35323.900
7.60	.054	36239.000	*	7.70	.057	37117.700
7.80	.059	37963.300	*	7.90	.062	38777.900
8.00	.065	39564.500	*	8.10	.088	45998.000
8.20	.092	47070.500	*	8.30	.096	48099.100
8.40	.100	49087.200	*	8.50	.104	50037.800
8.60	.117	52871.000	*	8.70	.121	53853.100
8.80	.125	54798.000	*	8.90	.130	55709.100
9.00	.134	56588.400	*	9.10	.158	61367.600
9.20	.163	62361.700	*	9.30	.169	63318.700
9.40	.174	64240.900	*	9.50	.179	65131.500
9.60	.207	69936.100	*	9.70	.213	70919.200
9.80	.219	71866.100	*	9.90	.225	72778.700
10.00	.230	73661.300	*	10.10	.302	84027.500
10.20	.311	85192.900	*	10.30	.319	86310.500
10.40	.328	87381.500	*	10.50	.336	88413.400
10.60	.465	103385.000	*	10.70	.478	104835.000
10.80	.492	106214.000	*	10.90	.504	107525.000
11.00	.517	108781.000	*	11.10	.823	135761.000
11.20	.850	137853.000	*	11.30	.876	139805.000
11.40	.901	141630.000	*	11.50	.926	143462.000
11.60	8.016	379825.000	*	11.70	8.990	398664.000
11.80	9.692	411417.000	*	11.90	10.214	420515.000
12.00	10.611	427221.000	*	12.10	2.048	207610.000
12.20	2.059	208104.000	*	12.30	2.069	208575.000
12.40	2.079	209026.000	*	12.50	2.088	209443.000
12.60	1.077	154038.000	*	12.70	1.079	154195.000
12.80	1.081	154346.000	*	12.90	1.083	154495.000
13.00	1.086	154635.000	*	13.10	.794	133412.000
13.20	.795	133500.000	*	13.30	.796	133588.000
13.40	.797	133674.000	*	13.50	.798	133755.000
13.60	.621	118782.000	*	13.70	.622	118838.000
13.80	.623	118897.000	*	13.90	.623	118951.000
14.00	.624	119002.000	*	14.10	.446	101366.000
14.20	.446	101401.000	*	14.30	.447	101433.000
14.40	.447	101466.000	*	14.50	.447	101500.000
14.60	.447	101531.000	*	14.70	.448	101563.000
14.80	.448	101594.000	*	14.90	.448	101626.000
15.00	.449	101657.000	*	15.10	.449	101686.000
15.20	.449	101720.000	*	15.30	.449	101747.000
15.40	.450	101779.000	*	15.50	.450	101809.000
15.60	.450	101840.000	*	15.70	.451	101868.000
15.80	.451	101897.000	*	15.90	.451	101926.000
16.00	.451	101946.000	*	16.10	.271	79726.500
16.20	.271	79737.300	*	16.30	.271	79750.900
16.40	.271	79766.500	*	16.50	.271	79777.200
16.60	.271	79791.900	*	16.70	.272	79803.600
16.80	.272	79818.200	*	16.90	.272	79830.900
17.00	.272	79841.600	*	17.10	.272	79857.200
17.20	.272	79866.900	*	17.30	.272	79882.500
17.40	.272	79894.200	*	17.50	.272	79905.900
17.60	.272	79919.500	*	17.70	.272	79933.100
17.80	.273	79944.800	*	17.90	.273	79956.500
18.00	.273	79970.100	*	18.10	.273	79983.700
18.20	.273	79993.400	*	18.30	.273	80005.100
18.40	.273	80019.700	*	18.50	.273	80028.400
18.60	.273	80043.900	*	18.70	.273	80053.700
18.80	.273	80065.300	*	18.90	.273	80078.900
19.00	.274	80089.600	*	19.10	.274	80102.200
19.20	.274	80113.800	*	19.30	.274	80124.500
19.40	.274	80136.200	*	19.50	.274	80148.800
19.60	.274	80159.500	*	19.70	.274	80169.200
19.80	.274	80182.700	*	19.90	.274	80194.400
20.00	.274	80207.000	*	20.10	.183	65882.100
20.20	.183	65888.100	*	20.30	.183	65896.500

20.40	.183	65902.500	*	20.50	.183	65907.300
20.60	.183	65912.100	*	20.70	.183	65921.700
20.80	.183	65927.700	*	20.90	.183	65932.500
21.00	.183	65934.900	*	21.10	.183	65945.700
21.20	.183	65948.100	*	21.30	.183	65955.300
21.40	.183	65961.300	*	21.50	.183	65968.500
21.60	.183	65972.100	*	21.70	.183	65980.500
21.80	.184	65985.300	*	21.90	.184	65993.700
22.00	.184	65996.100	*	22.10	.184	66000.900
22.20	.184	66009.300	*	22.30	.184	66016.500
22.40	.184	66018.900	*	22.50	.184	66027.200
22.60	.184	66030.900	*	22.70	.184	66036.900
22.80	.184	66045.200	*	22.90	.184	66047.600
23.00	.184	66057.200	*	23.10	.184	66058.400
23.20	.184	66068.000	*	23.30	.184	66069.200
23.40	.184	66078.800	*	23.50	.184	66083.500
23.60	.184	66089.500	*	23.70	.184	66090.700

*** HYDRAULIC INPUT VALUES FOR SUBWATERSHEDS ***

WATER SHED	AREA ACRES	CURVE NUMBER	TC HR	TT HR	ROUTING COEFFICIENTS K-HRS	UNIT X	HYDRO
1	16.00	51.00	.180	.000	.000	.00	3.0
2	5.70	90.00	.120	.000	.000	.00	.0

*** SEDIMENT INPUT VALUES FOR SUBWATERSHEDS ***

WATER SHED	SEG NUM	SOIL K	LENGTH FEET	SLOPE PCT	CP VALUE	PART OPT	SURF COND
1	1	.30	200.0	65.10	.037	1.0	.0
2	1	.30	70.0	21.80	.850	1.0	.0

* * * COMPUTED VALUES FOR INDIVIDUAL WATERSHEDS * * *

WATERSHED	PEAK FLOW (CFS)	RUNOFF (INCHES)	SEDIMENT TONS	DIAM (MM)	DELIVERY RATIO 1	DELIVERY RATIO 2
1	.18	.09	7.00	.056	.753	1.000
2	10.61	1.91	349.18	.100	1.000	1.000

NOTE: SEDIMENT DOES NOT INCLUDE POSSIBLE DEPOSITION BY DELIVERY RATIO 2
 ***** SUMMARY TABLE FOR TOTAL WATERSHED *****

RUNOFF VOLUME	=	1.0329	ACRE-FT
PEAK DISCHARGE	=	10.6110	CFS
AREA	=	21.7000	ACRES
TIME OF PEAK DISCHARGE	=	12.00	HRS
BETA	=	1.0000	
RAINFALL EROSITIVITY FACTOR	=	49.63	EI UNIT
PEAK CONCENTRATION	=	427221.00	MG/L
PEAK SETTLEABLE CONCENTRATION	=	270.79	ML/L
PEAK SETTLEABLE CONCENTRATION	=	338492.00	MG/L
TOTAL SEDIMENT YIELD	=	356.1760	TONS
REPRESENTATIVE PARTICLE SIZE	=	.0985	MM
TIME OF PEAK CONCENTRATION	=	12.00	HRS
PERIOD OF SIGNIFICANT CONCENTRATION	=	20.00	HRS
VOLUME WEIGHTED AVERAGE SETTLEABLE CONCENTRATION DURING PERIOD OF SIGNIFICANT CONCENTRATION	=	139.49	ML/L
VOLUME WEIGHTED AVERAGE SETTLEABLE CONCENTRATION DURING PEAK 24 HOUR PERIOD	=	139.49	ML/L
ARITHMETIC AVERAGE SETTLEABLE CONCENTRATION DURING PERIOD OF SIGNIFICANT CONCENTRATION	=	48.52	ML/L
ARITHMETIC AVERAGE SETTLEABLE CONCENTRATION DURING PEAK 24 HOUR PERIOD	=	40.44	ML/L

***** GENERATED DATA FOR INPUT INTO STRUCTURE 1 *****

*** PARTICLE SIZE DISTRIBUTION OF SEDIMENT ***

SIZE, MM	.2500	.1000	.0500	.0100	.0050	.0010
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PERCENT FINE 100.0000 50.3230 35.2261 19.1227 15.0969 6.0388
 SIZE,MM .0001
 PERCENT FINER .0000

*** HYDROGRAPH AND SEDIMENT GRAPH ***
 (TWO CONSECUTIVE VALUES PER LINE)

TIME (HR)	DISCHARGE (CFS)	SED DISC ***** (MG/L)	TIME (HR)	DISCHARGE (CFS)	SED DISC (MG/L)
.00	.000	.000	* .10	.000	.000
.20	.000	.000	* .30	.000	.000
.40	.000	.000	* .50	.000	.000
.60	.000	.000	* .70	.000	.000
.80	.000	.000	* .90	.000	.000
1.00	.000	.000	* 1.10	.000	.000
1.20	.000	.000	* 1.30	.000	.000
1.40	.000	.000	* 1.50	.000	.000
1.60	.000	.000	* 1.70	.000	.000
1.80	.000	.000	* 1.90	.000	.000
2.00	.000	.000	* 2.10	.000	.000
2.20	.000	.000	* 2.30	.000	.000
2.40	.000	.000	* 2.50	.000	.000
2.60	.000	.000	* 2.70	.000	.000
2.80	.000	.000	* 2.90	.000	.000
3.00	.000	.000	* 3.10	.000	.000
3.20	.000	.000	* 3.30	.000	.000
3.40	.000	.000	* 3.50	.000	.000
3.60	.000	.000	* 3.70	.000	.000
3.80	.000	.000	* 3.90	.000	.000
4.00	.000	.000	* 4.10	.000	.000
4.20	.000	.000	* 4.30	.000	.000
4.40	.000	.000	* 4.50	.000	.000
4.60	.000	.000	* 4.70	.000	.000
4.80	.000	.000	* 4.90	.000	.000
5.00	.000	.000	* 5.10	.000	.000
5.20	.000	.000	* 5.30	.000	.000
5.40	.000	.000	* 5.50	.000	.000
5.60	.000	.000	* 5.70	.000	.000
5.80	.000	.000	* 5.90	.000	.000
6.00	.000	.000	* 6.10	.000	.000
6.20	.012	17098.700	* 6.30	.015	19328.700
6.40	.018	21293.000	* 6.50	.022	23060.700
6.60	.025	24674.900	* 6.70	.028	26164.900
6.80	.031	27551.700	* 6.90	.034	28850.400
7.00	.037	30073.500	* 7.10	.040	31229.900
7.20	.043	32327.500	* 7.30	.046	33372.300
7.40	.049	34369.800	* 7.50	.051	35323.900
7.60	.054	36239.000	* 7.70	.057	37117.700
7.80	.059	37963.300	* 7.90	.062	38777.900
8.00	.065	39564.500	* 8.10	.088	45998.000
8.20	.092	47070.500	* 8.30	.096	48099.100
8.40	.100	49087.200	* 8.50	.104	50037.800
8.60	.117	52871.000	* 8.70	.121	53853.100
8.80	.125	54798.000	* 8.90	.130	55709.100
9.00	.134	56588.400	* 9.10	.158	61367.600
9.20	.163	62361.700	* 9.30	.169	63318.700
9.40	.174	64240.900	* 9.50	.179	65131.500
9.60	.207	69936.100	* 9.70	.213	70919.200
9.80	.219	71866.100	* 9.90	.225	72778.700
10.00	.230	73661.300	* 10.10	.302	84027.500
10.20	.311	85192.900	* 10.30	.319	86310.500
10.40	.328	87381.500	* 10.50	.336	88413.400
10.60	.465	103385.000	* 10.70	.478	104835.000
10.80	.492	106214.000	* 10.90	.504	107525.000
11.00	.517	108781.000	* 11.10	.823	135761.000
11.20	.850	137853.000	* 11.30	.876	139805.000
11.40	.901	141630.000	* 11.50	.926	143462.000

11.60	8.016	379825.000	*	11.70	8.990	398664.000
11.80	9.692	411417.000	*	11.90	10.214	420515.000
12.00	10.611	427221.000	*	12.10	2.048	207610.000
12.20	2.069	207190.000	*	12.30	2.099	206091.000
12.40	2.136	204513.000	*	12.50	2.178	202700.000
12.60	1.199	142894.000	*	12.70	1.211	142408.000
12.80	1.216	142368.000	*	12.90	1.223	142242.000
13.00	1.232	141939.000	*	13.10	.950	119269.000
13.20	.955	119200.000	*	13.30	.957	119213.000
13.40	.961	119147.000	*	13.50	.967	118989.000
13.60	.796	103495.000	*	13.70	.796	103559.000
13.80	.796	103667.000	*	13.90	.796	103721.000
14.00	.798	103717.000	*	14.10	.622	86406.500
14.20	.617	86581.400	*	14.30	.611	86794.900
14.40	.606	86980.400	*	14.50	.603	87123.700
14.60	.602	87208.600	*	14.70	.601	87270.100
14.80	.601	87325.500	*	14.90	.601	87371.800
15.00	.601	87405.400	*	15.10	.601	87430.600
15.20	.602	87454.300	*	15.30	.602	87465.200
15.40	.603	87472.900	*	15.50	.604	87470.700
15.60	.606	87464.700	*	15.70	.607	87452.200
15.80	.609	87436.500	*	15.90	.611	87414.800
16.00	.612	87381.700	*	16.10	.432	67124.200
16.20	.423	67139.400	*	16.30	.413	67210.300
16.40	.405	67307.600	*	16.50	.400	67392.200
16.60	.398	67448.100	*	16.70	.396	67485.400
16.80	.395	67524.800	*	16.90	.394	67561.700
17.00	.393	67595.700	*	17.10	.392	67632.800
17.20	.391	67662.800	*	17.30	.390	67696.300
17.40	.390	67723.900	*	17.50	.389	67748.900
17.60	.389	67773.100	*	17.70	.389	67794.200
17.80	.389	67810.400	*	17.90	.389	67823.400
18.00	.389	67834.800	*	18.10	.389	67842.700
18.20	.389	67843.500	*	18.30	.390	67842.700
18.40	.391	67841.100	*	18.50	.391	67831.400
18.60	.392	67828.100	*	18.70	.393	67819.700
18.80	.394	67813.500	*	18.90	.395	67809.500
19.00	.396	67803.200	*	19.10	.396	67799.000
19.20	.397	67794.300	*	19.30	.398	67789.100
19.40	.399	67785.200	*	19.50	.400	67782.400
19.60	.400	67778.300	*	19.70	.401	67773.700
19.80	.402	67772.900	*	19.90	.403	67770.700
20.00	.404	67769.600	*	20.10	.312	55615.900
20.20	.305	55524.600	*	20.30	.299	55461.600
20.40	.293	55438.500	*	20.50	.290	55436.800
20.60	.288	55442.600	*	20.70	.286	55453.800
20.80	.285	55463.000	*	20.90	.284	55472.200
21.00	.283	55479.900	*	21.10	.282	55495.400
21.20	.282	55503.800	*	21.30	.281	55516.400
21.40	.280	55527.700	*	21.50	.280	55539.800
21.60	.279	55548.100	*	21.70	.279	55559.900
21.80	.278	55567.800	*	21.90	.278	55577.900
22.00	.278	55581.700	*	22.10	.278	55586.600
22.20	.278	55593.600	*	22.30	.278	55598.400
22.40	.279	55597.900	*	22.50	.279	55601.800
22.60	.279	55601.500	*	22.70	.280	55603.400
22.80	.280	55607.400	*	22.90	.280	55606.400
23.00	.281	55611.700	*	23.10	.281	55609.800
23.20	.281	55615.200	*	23.30	.282	55613.500
23.40	.282	55619.200	*	23.50	.282	55620.800
23.60	.283	55623.500	*	23.70	.283	55622.100
23.80	.283	55630.200	*	23.90	.100	36017.600
24.00	.100	36072.700	*	24.10	.098	35679.500
24.20	.082	32633.500	*	24.30	.064	29052.500
24.40	.051	25933.700	*	24.50	.042	23476.300
24.60	.036	21917.000	*	24.70	.033	20749.600

24.80	.029	19580.000	*	24.90	.026	18407.900
25.00	.022	17233.600	*	25.10	.019	16056.900
25.20	.017	14877.900	*	25.30	.014	13696.500
25.40	.012	12512.700	*	25.50	.010	11326.600
25.60	.008	10138.200	*	25.70	.006	8947.330
25.80	.005	7754.110	*	25.90	.003	6558.530
26.00	.002	5360.550	*	26.10	.001	4160.160
26.20	.001	2957.300	*	26.30	.000	.000

POND RESULTS

***** CONTROL VARIABLES OPTIONS *****

FLOW	FRACTN	ISQD	NRHP	NSP	NCSTR
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3	0	1	450	13	2
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***** BASIN GEOMETRY *****

STAGE (FT)	AREA (ACRES)	AVERAGE DEPTH (FT)	DISCHARGE (CFS)	CAPACITY (ACRES-FT)
.00	.112	.00	.00	.00
.50	.118	.49	.00	.06
1.00	.125	.98	.00	.12
1.50	.131	1.46	.00	.18
2.00	.138	1.93	.00	.25
3.00	.153	2.84	.00	.39
4.00	.168	3.72	.00	.56
5.00	.182	4.59	.00	.73
5.30	.187	4.84	.00	.79
5.80	.194	5.26	6.90	.88
6.30	.202	5.68	15.10	.98
6.80	.220	6.08	22.20	1.09
7.10	.225	6.31	29.00	1.15

***** STORM EVENT SUMMARY *****

TURBULENCE FACTOR	=	1.00	
PERMANENT POOL CAPACITY	=	.786	ACRE-FT
DEAD STORAGE	=	30.00	PERCENT
TIME INCREMENT OUTFLOW	=	.10	HRS
VISCOSITY	=	.009	CM**2/SEC
INFLOW RUNOFF VOLUME	=	1.033	ACRE-FT
OUTFLOW Routed VOLUME	=	1.033	ACRE-FT
STORM VOLUME DISCHARGED (PLUG FLOW)	=	1.033	ACRE-FT
POND VOLUME AT PEAK STAGE	=	.913	ACRE-FT
PEAK STAGE	=	5.960	FT
PEAK INFLOW RATE	=	10.611	CFS
PEAK DISCHARGE RATE	=	9.516	CFS
PEAK INFLOW SEDIMENT CONCENTRATION	=	427221.00	MG/L
PEAK EFFLUENT SEDIMENT CONCENTRATION	=	52742.70	MG/L
PEAK EFFLUENT SETTLEABLE CONCENTRATION	=	.0161	ML/L
PEAK EFFLUENT SETTLEABLE CONCENTRATION	=	20.09	MG/L
STORM AVERAGE EFFLUENT CONCENTRATION	=	35021.40	MG/L
AVERAGE EFFLUENT SEDIMENT CONCENTRATION	=	35021.40	MG/L
BASIN TRAP EFFICIENCY	=	86.26	PERCENT
DETENTION TIME OF FLOW WITH SEDIMENT	=	.17	HRS
DETENTION TIME FROM HYDROGRAPH CENTERS	=	.17	HRS
DETENTION TIME INCLUDING STORED FLOW	=	.17	HRS
SEDIMENT LOAD DISCHARGED	=	48.93	TONS
PERIOD OF SIGNIFICANT CONCENTRATION	=	20.00	HRS
VOLUME WEIGHTED AVERAGE SETTLEABLE CONCENTRATION DURING PERIOD OF SIGNIFICANT CONCENTRATION	=	.01	ML/L
VOLUME WEIGHTED AVERAGE SETTLEABLE CONCENTRATION DURING PEAK 24 HOUR PERIOD	=	.01	ML/L
ARITHMETIC AVERAGE SETTLEABLE CONCENTRATION DURING PERIOD OF			

SIGNIFICANT CONCENTRATION = .01 ML/L
 ARITHMETIC AVERAGE SETTLEABLE
 CONCENTRATION DURING PEAK 24 HOUR
 PERIOD = .01 ML/L

*** PARTICLE SIZE DISTRIBUTION OF SEDIMENT ***

SIZE,MM	.2500	.1000	.0500	.0100	.0050	.0010
PERCENT FINER	100.0000	100.0000	100.0000	100.0000	100.0000	43.9620
SIZE,MM	.0001					
PERCENT FINER	.0000					

*** HYDROGRAPH AND SEDIMENT GRAPH ***

(TWO CONSECUTIVE VALUES PER LINE)

TIME (HR)	DISCHARGE (CFS)	SED DISC ***** (MG/L)	*	TIME (HR)	DISCHARGE (CFS)	SED DISC (MG/L)
.00	.000	.000	*	.10	.000	.000
.20	.000	.000	*	.30	.000	.000
.40	.000	.000	*	.50	.000	.000
.60	.000	.000	*	.70	.000	.000
.80	.000	.000	*	.90	.000	.000
1.00	.000	.000	*	1.10	.000	.000
1.20	.000	.000	*	1.30	.000	.000
1.40	.000	.000	*	1.50	.000	.000
1.60	.000	.000	*	1.70	.000	.000
1.80	.000	.000	*	1.90	.000	.000
2.00	.000	.000	*	2.10	.000	.000
2.20	.000	.000	*	2.30	.000	.000
2.40	.000	.000	*	2.50	.000	.000
2.60	.000	.000	*	2.70	.000	.000
2.80	.000	.000	*	2.90	.000	.000
3.00	.000	.000	*	3.10	.000	.000
3.20	.000	.000	*	3.30	.000	.000
3.40	.000	.000	*	3.50	.000	.000
3.60	.000	.000	*	3.70	.000	.000
3.80	.000	.000	*	3.90	.000	.000
4.00	.000	.000	*	4.10	.000	.000
4.20	.000	.000	*	4.30	.000	.000
4.40	.000	.000	*	4.50	.000	.000
4.60	.000	.000	*	4.70	.000	.000
4.80	.000	.000	*	4.90	.000	.000
5.00	.000	.000	*	5.10	.000	.000
5.20	.000	.000	*	5.30	.000	.000
5.40	.000	.000	*	5.50	.000	.000
5.60	.000	.000	*	5.70	.000	.000
5.80	.000	.000	*	5.90	.000	.000
6.00	.000	.000	*	6.10	.000	.000
6.20	.003	.000	*	6.30	.008	.001
6.40	.012	.003	*	6.50	.016	.008
6.60	.019	.015	*	6.70	.022	.028
6.80	.026	.047	*	6.90	.029	.073
7.00	.032	.108	*	7.10	.035	.155
7.20	.038	.215	*	7.30	.041	.290
7.40	.044	.383	*	7.50	.047	.496
7.60	.049	.631	*	7.70	.052	.791
7.80	.055	.979	*	7.90	.058	1.197
8.00	.060	1.448	*	8.10	.068	1.783
8.20	.078	2.235	*	8.30	.085	2.789
8.40	.091	3.451	*	8.50	.096	4.227
8.60	.103	5.159	*	8.70	.110	6.277
8.80	.116	7.568	*	8.90	.121	9.043
9.00	.126	10.711	*	9.10	.135	12.722
9.20	.147	15.160	*	9.30	.156	17.955
9.40	.163	21.124	*	9.50	.169	24.676
9.60	.180	28.880	*	9.70	.194	33.871
9.80	.204	39.505	*	9.90	.212	45.807
10.00	.219	52.779	*	10.10	.241	61.570
10.20	.271	72.736	*	10.30	.291	85.606

10.40	.306	100.237	*	10.50	.318	116.586
10.60	.356	138.022	*	10.70	.409	166.305
10.80	.444	199.466	*	10.90	.469	237.582
11.00	.488	280.441	*	11.10	.572	342.298
11.20	.694	431.912	*	11.30	.772	541.517
11.40	.825	670.790	*	11.50	.866	818.394
11.60	2.526	2268.830	*	11.70	5.278	8322.580
11.80	7.174	18235.800	*	11.90	8.589	30092.400
12.00	9.516	42517.400	*	12.10	7.890	49508.700
12.20	5.107	50994.300	*	12.30	3.714	52012.100
12.40	2.978	52526.400	*	12.50	2.599	52742.700
12.60	2.179	52503.400	*	12.70	1.730	51980.400
12.80	1.492	51498.700	*	12.90	1.366	51015.100
13.00	1.302	50538.400	*	13.10	1.205	50022.700
13.20	1.088	49490.000	*	13.30	1.027	48988.700
13.40	.996	48500.800	*	13.50	.981	48026.500
13.60	.935	47543.200	*	13.70	.871	47065.400
13.80	.836	46617.000	*	13.90	.818	46182.600
14.00	.808	45756.200	*	14.10	.763	45321.300
14.20	.697	44892.800	*	14.30	.658	44489.800
14.40	.635	44101.200	*	14.50	.621	43725.300
14.60	.612	43359.600	*	14.70	.607	43000.800
14.80	.604	42648.600	*	14.90	.602	42303.400
15.00	.601	41965.200	*	15.10	.601	41633.900
15.20	.601	41309.500	*	15.30	.601	40990.600
15.40	.602	40675.000	*	15.50	.603	40362.800
15.60	.604	40054.400	*	15.70	.605	39750.100
15.80	.606	39450.100	*	15.90	.608	39154.500
16.00	.609	38862.400	*	16.10	.569	38567.400
16.20	.504	38284.000	*	16.30	.464	38021.800
16.40	.438	37769.500	*	16.50	.422	37525.000
16.60	.411	37287.400	*	16.70	.405	37055.600
16.80	.400	36827.900	*	16.90	.398	36604.100
17.00	.396	36384.100	*	17.10	.394	36168.000
17.20	.393	35955.600	*	17.30	.392	35746.900
17.40	.391	35541.500	*	17.50	.390	35338.300
17.60	.390	35137.200	*	17.70	.389	34938.000
17.80	.389	34740.700	*	17.90	.389	34545.000
18.00	.389	34350.900	*	18.10	.389	34158.200
18.20	.389	33966.900	*	18.30	.389	33776.900
18.40	.390	33588.200	*	18.50	.390	33400.700
18.60	.391	33214.300	*	18.70	.392	33028.900
18.80	.392	32844.600	*	18.90	.393	32661.400
19.00	.394	32479.100	*	19.10	.395	32297.900
19.20	.396	32117.600	*	19.30	.396	31938.100
19.40	.397	31759.600	*	19.50	.398	31581.900
19.60	.399	31405.100	*	19.70	.400	31229.000
19.80	.401	31053.900	*	19.90	.401	30879.500
20.00	.402	30705.900	*	20.10	.382	30533.400
20.20	.348	30368.800	*	20.30	.327	30214.200
20.40	.312	30064.200	*	20.50	.303	29917.600
20.60	.296	29773.800	*	20.70	.292	29632.200
20.80	.289	29492.500	*	20.90	.287	29354.500
21.00	.285	29218.100	*	21.10	.284	29083.100
21.20	.283	28949.400	*	21.30	.282	28817.000
21.40	.281	28685.700	*	21.50	.281	28555.500
21.60	.280	28426.300	*	21.70	.279	28298.200
21.80	.279	28171.000	*	21.90	.279	28044.700
22.00	.278	27919.400	*	22.10	.278	27794.800
22.20	.278	27671.100	*	22.30	.278	27548.000
22.40	.278	27425.700	*	22.50	.278	27304.100
22.60	.279	27183.200	*	22.70	.279	27062.900
22.80	.279	26943.200	*	22.90	.280	26824.100
23.00	.280	26705.600	*	23.10	.280	26587.600
23.20	.281	26470.200	*	23.30	.281	26353.400
23.40	.281	26237.100	*	23.50	.282	26121.300

23.60	.282	26006.100	*	23.70	.282	25891.400
23.80	.283	25777.200	*	23.90	.241	25665.400
24.00	.176	25564.900	*	24.10	.140	25476.800
24.20	.117	25394.100	*	24.30	.097	25315.700
24.40	.079	25241.500	*	24.50	.064	25171.200
24.60	.053	25104.100	*	24.70	.044	25039.800
24.80	.038	24977.700	*	24.90	.033	24917.600
25.00	.029	24859.300	*	25.10	.025	24802.600
25.20	.022	24747.400	*	25.30	.019	24693.500
25.40	.016	24641.000	*	25.50	.014	24589.600
25.60	.011	24539.300	*	25.70	.009	24490.100
25.80	.007	24441.800	*	25.90	.006	24394.400
26.00	.004	24347.800	*	26.10	.003	24302.000
26.20	.002	24257.000	*	26.30	.001	24212.600

*** RUN COMPLETED ***